

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E – ECE/EIE/ETCE

Title of the paper: Circuit Theory

Semester: III

Sub.Code: 6C0026(2006-2007)

Date: 25-04-2009

Max.Marks: 80

Time: 3 Hours

Session: AN

PART – A

(10 x 2 = 20)

Answer ALL the Questions

1. State Superposition theorem.
2. Write Tellegen's theorem.
3. Give examples for impulse and ramp functions.
4. What is meant by transfer impedance?
5. Define Q factor of resonant circuit.
6. Write the principle of single tuned circuit.
7. Give example for dual networks.
8. Write notes on tie set schedule.
9. Write the basic concept of Pspice.
10. Give the application of Pspice in DC networks.

PART – B

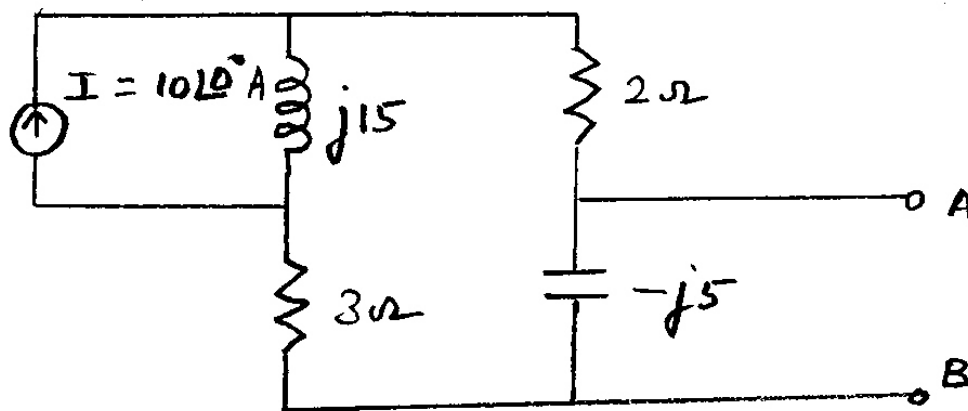
(5 x 12 = 60)

Answer All the Questions

11. A 1 KHz generator has internal impedance containing a resistance of 50Ω in series with an inductance of 0.01H . In supplying a load of 1000Ω resistance a capacitor is connected in parallel with the load and a circuit of inductance L and negligible resistance is put in series with the generator. Find the values of C and L which will give maximum power in the load.

(or)

12. Obtain Norton's equivalent across terminals, A and B for the network shown in figure(1).



13. The driving point admittance of a series RLC circuit has its poles located in the S plane as follows: One zero at the origin, a pair of complex poles at $S = -1 \pm j 25$, the scale factor of the admittance function being $K = 5$. Find the values of the circuit components.

(or)

14. (a) Discuss the restriction on the location of poles and zeros in the S -plane. (8)
- (b) Write the concept of complex frequency. (4)

15. Give the analysis of coupled circuits.
(or)
16. Explain the concept of resonance in series and parallel circuits.
17. Discuss the applications of network solutions.
(or)
18. Explain network topology in detail.
19. Explain AC network analysis with Pspice concepts.
(or)
20. Discuss the transient analysis with Pspice.